18-month clinical evaluation of a copper-containing universal adhesive in non-carious cervical lesions: A double-blind, randomized controlled trial

Matos T.P.

Gutiérrez M.F.

Hanzen T.A.

Malaquias P.

de Paula A.M.

de Souza J.J.

Hass V.

Fernández E.

Reis A.

Loguercio A.D.

Objective: This study aimed to evaluate the addition of copper nanoparticles (CuNp) on the clinical performance of a universal adhesive system used as etch-and-rinse (ER) and self-etch (SE). Methods: 216 restorations were randomly placed in 36 subjects according to the following groups: ERcu = etch-and-rinse with 0.1% CuNp; ERct = etch-and-rinse without CuNp; SEcu = self-etch with 0.1% CuNp; SEct = self-etch without CuNp. Resin composite was placed incrementally and light-cured. The restorations were evaluated at baseline and 6, 12 and 18 months using the FDI and USPHS criteria. Statistical analyses were performed using appropriate tests (? = 0.05). Results: The addition of CuNp did not increase the clinical performance (FDI / USPHS) of the universal adhesive tested after 18-month when applied in the ER mode ($p > 0.05$). The addition of CuNp in SE restorations increased the retention rate significantly and decreased the marginal discrepancies after 18 months ($p < 0.05$). Conclusion: The clinical performance of universal adhesive was significantly increased when applied in the SE mode with the addition of copper nanoparticles. Clinical relevance: This is the first study that demonstrates a slight improvement in the clinical performance of universal adhesive systems in non-carious cervical lesions when added CuNp in

lower concentration. © 2019 Elsevier Ltd

Clinical trial

Copper nanoparticles

Longevity

Non-carious cervical lesion

Universal adhesive system

copper

dentin bonding agent

resin

resin cement

tooth cement

chemistry

controlled study

dental bonding

dental restoration

double blind procedure

human

pathology

procedures

randomized controlled trial

tooth cervix

Composite Resins

Copper

Dental Bonding

Dental Cements

Dental Restoration Failure

Dental Restoration, Permanent

Dentin-Bonding Agents

Double-Blind Method

Humans

Resin Cements

Tooth Cervix